HyNet North West

ENVIRONMENTAL STATEMENT (VOLUME III)

Appendix 15.3 Noise and Vibration Assessment Results (Tracked Change)

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulations 5(2)(a)

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TABLES

1. NOISE

1.1. CONSTRUCTION

CONSTRUCTION NOISE MODEL RESULTS

This section presents the results of the noise predictions for the Construction Stage of the DCO Proposed Development.

This **Revision B** of **Appendix 15.3: Noise and Vibration Assessment Results** replaces and supersedes **Revision A (APP-146)**. **Appendix 15.3 (Revision B)** provides updated baseline information in response to the proposed design changes as outlined in **Table i.i** of **Chapter I** of the **ES Addendum 2023 Change Request 1**.

As discussed in **Chapter 15 – Noise and Vibration (Volume II**), a noise model was produced using CadnaA software. The following activities have been included in the model:

- Open cut trenches: daytime only;
- Trenchless crossings: daytime, evening and night-time;
- Compounds: daytime only;
- AGIs and BVSs: daytime only; and
- Access locations for heavy vehicles: daytime only.

Open cut trenches have been modelled in three potential locations in order to predict the potential variation in noise impact. The following scenarios were modelled:

- Indicative Newbuild Carbon Dioxide Pipeline route, as presented in **Figure 3.2 DCO Proposed Development (Volume IV);**
- Indicative Newbuild Carbon Dioxide Pipeline route near the north west part of the Newbuild Infrastructure Boundary, therefore closer to noise sensitive receptors located north west of the boundary; and
- Indicative Newbuild Carbon Dioxide Pipeline route near the south east part of the Newbuild Infrastructure Boundary, therefore closer to noise sensitive receptors located south east of the boundary.

Table 1, **Table 2**, and **Table 3** present the number of noise sensitive receptors subject to a negligible to high magnitude of impact in accordance with the criteria presented in **Table 15.14** in **Chapter 15 – Noise and Vibration (Volume II)**. The tables show the number of receptors for both unmitigated and mitigated scenarios.

Table 1 - Magnitude of Construction Noise Impact – Indicative Route

Magnitude of Impact	Number of Receptors – Unmitigated			Number of Receptors – Mitigated		
	Day	Evening	Night	Day	Evening	Night
Negligible	~~922~~1087	~~1956~~2431	~~1556~~1851	~~2804~~2858	~~3294~~3403	~~2804~~3057
Low	~~2105~~1991	~~809~~685	~~468~~533	~~955~~956	~~313~~271	~~504~~379
Medium	~~503~~502	~~606~~366	~~675~~638	~~51~~37	~~163~~131	~~267~~202
High	~~328~~276	~~487~~374	~~1159~~834	~~8~~5	~~88~~51	~~283~~218

Table 2 - Magnitude of Construction Noise Impact – Route near North West Boundary

Magnitude of Impact	Number of Receptors – Unmitigated			Number of Receptors – Mitigated		
	Day	Evening	Night	Day	Evening	Night
Negligible	~~919~~1016	~~1977~~2315	~~1556~~1779	~~2783~~2826	~~3289~~3329	~~2791~~2968
Low	~~2071~~2034	~~773~~710	~~485~~499	~~985~~949	~~308~~299	~~501~~372
Medium	~~524~~513	~~590~~410	~~633~~657	~~67~~59	~~172~~168	~~263~~228
High	~~344~~293	~~518~~421	~~1184~~921	~~23~~22	~~89~~60	~~303~~288

Table 3 - Magnitude of Construction Noise Impact – Route near South East Boundary

Magnitude of Impact	Number of Receptors – Unmitigated			Number of Receptors – Mitigated		
	Day	Evening	Night	Day	Evening	Night
Negligible	~~937~~1064	~~1988~~2332	~~1594~~1819	~~2793~~2861	~~3340~~3429	~~2832~~3028
Low	~~2102~~2004	~~787~~688	~~479~~491	~~973~~919	~~273~~243	~~526~~416
Medium	~~490~~487	~~619~~465	~~613~~646	~~73~~55	~~137~~130	~~224~~191
High	~~329~~301	~~464~~371	~~1172~~900	~~19~~21	~~108~~54	~~276~~221

Table 4, **Table 5** and **Table 6** present a range of predicted noise levels associated with the three open trench routes modelled for both unmitigated and mitigated scenarios. The values shown in the tables correspond to façade noise levels at a height of 4m for receptors within the Study Area. Values for evening and night-time relate to associated variations in the locations for trenchless crossings.

Table 4 - Predicted Noise Levels – Indicative Newbuild Carbon Dioxide Pipeline Route

Magnitude of Impact	Unmitigated Central L_{Aeq} dB			Mitigated Central L_{Aeq} dB		
	Day	Evening	Night	Day	Evening	Night
Negligible	15 – 65~~ – 15~~	9 – 59~~ – 9~~	9 – 57~~ – 9~~	15 – 63~~ – 15~~	9 – 59~~ – 9~~	9 – 57 ~~– 9~~
Low	48 – 70~~ – 48~~	43 – 65~~ – 43~~	40 – 54~~ – 40~~	48 – 70~~ – 48~~	42 – 64~~ – 42~~	40 – 55~~ – 40~~
Medium	65 – 75~~ – 65~~	~~70 –~~ 55 – 69	46 - 60~~ – 46~~	~~71 –~~ 65 – 69	~~69 –~~ 55 – 68	~~60 –~~ 45 – 59
High	~~83 –~~ 70 - 82	~~83 –~~ 60 - 82	~~83 –~~ 50 - 82	~~73 –~~ 70 - 72	~~73 – 60~~42 – 64	~~73 –~~ 50 – 72

Table 5 - Predicted Noise Levels – Route near North West Boundary

Magnitude of Impact	Unmitigated South-East Boundary L_{Aeq} dB			Mitigated South-East Boundary L_{Aeq} dB		
	Day	Evening	Night	Day	Evening	Night
Negligible	64 – 15 – 65	9 – 59 – 9	9 – 57 – 9	63 – 15 – 65	9 – 59 – 9	9 – 57 – 9
Low	52 – 70 – 48	43 – 65 – 43	53 – 4241 – 54	69 – 47 – 70	42 – 65 – 42	55 – 40 – 53
Medium	65 – 75 – 65	69.7 – 55 – 70	46 – 60 – 45	72 – 65 – 74	69 – 55 – 68	45 – 60 – 45
High	84 – 70 - 88	84 – 60 - 83	84 – 50 - 83	74 – 70 - 78	60 - 74 – 60	50 – 74 – 50

Table 6 - Predicted Noise Levels – Route near South East Boundary

Magnitude of Impact	Unmitigated North-West Boundary L_{Aeq} dB			Mitigated North-West Boundary L_{Aeq} dB		
	Day	Evening	Night	Day	Evening	Night
Negligible	15 – 65 – 15	9 – 59 – 9	9 – 57 – 9	15 – 63 – 15	9 – 59 – 9	9 – 57 – 9
Low	48 – 70 – 52	43 – 65 – 43	54 – 4342 – 45	70 – 47 – 69	65 – 42 – 59	40 – 55 – 40
Medium	65 – 75 – 65	70 – 55 – 69	45 – 60 – 46	75 – 65 – 70	70 – 55 – 60	45 – 60 – 45
High	88 – 70 - 92	84 – 60 - 86	84 – 50 - 86	78 – 70 - 82	60 - 74 – 60	50 – 74 – 50

Important Areas and Noise Action Planning Priority Areas

Table 7 shows ~~the~~a Noise Important Areas (~~IAs~~IA) where there are noise sensitive receptors likely to experience ~~a significant adverse effect~~either a medium or a high magnitude of noise impact during the construction period. ~~No~~However, no significant adverse effects were identified within IAs or Noise Action Planning Priority Areas (NAPPAs).

Table 7 - ~~Significant~~ Adverse Effects within IAs

Alignment Variant	Period	NIA ID
		10784
Central Indicative Alignment	Day	0
	Evening	0
	Night	X
North-West Boundary Alignment	Day	0
	Evening	0
	Night	X
South-East Boundary Alignment	Day	0
	Evening	0
	Night	X

Construction Road Traffic Noise

An assessment of the potential noise impact due to road traffic noise impact during the Construction Stage was undertaken. **Table 8** ~~and **Table 9** present~~presents the changes in noise levels predicted for the following scenarios:

- ~~Year 2025 without DCO Proposed Development (2025 Do-Minimum) versus Year 2021 without DCO Proposed Development (2021 Do-Minimum); and~~
- Year 2025 with DCO Proposed Development (2025 Do-Something) versus Year 2025 without DCO Proposed Development (2025 Do-Minimum).

The noise levels presented in the tables correspond to $L_{A10,18hr}$ dB in accordance with guidance in the Calculation of Road Traffic Noise (CRTN). For road links where the road traffic flows are low and outside the scope of CRTN, then noise levels $L_{Aeq,18hr}$ have been compared using guidance in the Advisory Council (1978): A guide to measurement and prediction of sound level L_{eq}.

Road links IDs referred in the tables are described in **Appendix 17-4 Baseline Traffic Data (Volume III).**

Table 8 - 2021 and 2025 Road Traffic Noise Levels Comparison

Link ID	2021 Do-Minimum					2025 Do-Minimum					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
1	337	8	4361	68	-	351	7	4545	68	-	0
2	336	7	4657	68	-	351	7	4854	68	-	0
3	26	2	1595	65	-	27	2	1662	65	-	0
4	11	1	1469	64	-	12	1	1531	64	-	0
5	7	2	291	-	50	7	2	303	-	50	0
6	10	1	1595	62	-	10	1	1662	62	-	0
7	302	2	16796	71	-	312	2	17332	71	-	0
8	222	3	7914	68	-	229	3	8167	68	-	0
9	27	0	6310	67	-	28	0	6512	67	-	0
10	10	1	1657	62	-	10	1	1710	62	-	0

Link ID	2021 Do-Minimum					2025 Do-Minimum					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
11	98	1	8222	66	-	101	1	8484	66	-	0
12	153	1	11760	68	-	158	1	12135	68	-	0
13	238	4	5966	66	-	248	4	6219	66	-	0
14	391	10	3842	65	-	404	10	3965	65	-	0
15	0	0	4684	65	-	0	0	4882	65	-	0
16	7	2	323	-	49	7	2	334	-	49	0
17	1	1	146	-	48	1	1	150	-	48	0
18	6	2	347	-	51	6	2	358	-	51	0
19	232	2	13323	70	-	242	2	13886	71	-	0
21	7	0	1555	62	-	7	0	1604	62	-	0
22	345	6	5320	66	-	356	6	5490	66	-	0

Link ID	2021 Do-Minimum					2025 Do-Minimum					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
24	4	5	85	-	44	4	5	88	-	44	0
25	432	9	4979	66	-	446	9	5138	66	-	0
26	168	11	1563	66	-	173	11	1613	66	-	0
27	38	2	1590	64	-	39	2	1640	64	-	0
28	111	2	4719	66	-	114	2	4870	66	-	0

~~Table 9~~Table 8 - 2025 Road Traffic Basic Noise Levels Comparison

Link ID	2025 Do-Minimum					2025 Do-Something					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
1	~~351~~ 654	7.5 %	~~4545~~ 8,682	~~68~~71	-	~~483~~ 684	~~9~~7.7 %	~~5205~~ 8,831	~~69~~71	-	~~1~~0
2	~~351~~ 612	~~7~~2.4 %	~~4854~~ 25,085	~~68~~76	-	~~379~~ 656	~~8~~2.6 %	~~4994~~ 25,304	~~68~~76	-	0
3	~~27~~ 22	~~2~~1.5 %	~~1662~~ 1,475	~~65~~66	-	~~111~~ 42	~~5~~2.7 %	~~2082~~ 1,577	66	-	~~1~~0
4	~~12~~ 12	~~1~~0.8 %	~~1531~~ 1,449	64	-	~~40~~ 25	~~2~~1.6 %	~~1671~~ 1,512	64	-	0
5	~~7~~ 8	2.6 %	~~303~~ 304	~~-~~60	~~50~~49	~~35~~ 21	~~8~~5.6 %	~~443~~ 367	~~-~~60	~~52~~50	~~2~~1
6	~~10~~ 9	~~1~~0.6 %	~~1662~~ 1,497	~~62~~63	-	~~62~~ 40	~~3~~2.4 %	~~1922~~ 1,654	63	-	~~1~~0
7	~~312~~ 256	~~2~~1.5 %	~~17332~~ 16,610	~~7~~173	-	~~354~~ 289	~~2~~1.7 %	~~17542~~ 16,775	~~72~~73	-	~~1~~0
8	~~229~~ 24	~~3~~0.7 %	~~8167~~ 3,340	~~68~~67	-	~~271~~ 57	~~3~~1.6 %	~~8377~~ 3,504	~~69~~67	-	~~1~~0
9	~~28~~ 23	0.4 %	~~6512~~ 6,076	~~67~~69	-	~~136~~ 33	~~2~~0.5 %	~~7052~~ 6,123	~~68~~69	-	~~1~~0

Link ID	2025 Do-Minimum					2025 Do-Something					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
10	~~10~~ 8	~~1~~0.5 %	~~1710~~ 1,640	62	-	~~100~~ 18	~~5~~1.0 %	~~2160~~ 1,687	~~63~~62	-	~~1~~0
11	~~101~~ 86	1.1 %	~~8484~~ 7,633	~~66~~69	-	~~167~~ 95	1.2 %	~~8814~~ 7,680	~~67~~69	-	~~1~~0
12	~~158~~ 130	1.2 %	~~12135~~ 11,254	~~68~~69	-	~~224~~ 149	~~2~~1.3 %	~~12465~~ 11,348	~~68~~69	-	0
13	~~248~~ 226	~~4~~3.9 %	~~6219~~ 5,792	66	-	~~272~~ 235	4.0 %	~~6339~~ 5,839	66	-	0
14	~~404~~ 348	~~10~~9.5 %	~~3965~~ 3,664	65	-	~~428~~ 358	~~10~~9.6 %	~~4085~~ 3,711	~~66~~65	-	~~1~~0
15	~~0~~ 514	~~0~~12.4 %	~~4882~~ 4,144	~~65~~67	-	~~24~~ 542	~~0~~12.7 %	~~5002~~ 4,285	~~66~~67	-	~~1~~0
16	~~7~~ 6	~~2~~1.8 %	~~334~~ 311	~~-~~60	49	~~31~~ 15	~~7~~4.2 %	~~454~~ 358	~~-~~60	~~51~~49	~~2~~0
17	~~1~~ 1	~~1~~0.8 %	~~150~~ 141	~~-~~63	~~48~~47	~~25~~ 11	~~9~~5.6 %	~~270~~ 188	~~-~~62	~~51~~48	~~3~~1
18	~~6~~ 6	~~2~~1.9 %	~~358~~ 340	~~-~~61	~~51~~50	~~58~~ 38	~~9~~7.6 %	~~618~~ 497	~~-~~60	~~54~~52	~~3~~2

Link ID	2025 Do-Minimum					2025 Do-Something					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
19	~~242~~ 228	~~2~~1.5 %	~~13886~~ 15,679	~~71~~74	-	~~266~~ 247	~~2~~1.6 %	~~14006~~ 15,773	~~71~~74	-	0
21	~~7~~ 4	0.2 %	~~1604~~ 1,753	~~62~~61	-	~~31~~ 23	1.2 %	~~1724~~ 1,847	~~62~~61	-	0
22	~~356~~ 7	~~6~~0.5 %	~~5490~~ 1,462	~~66~~61	-	~~404~~ 26	~~7~~1.6 %	~~5730~~ 1,556	~~66~~61	-	0
24	~~4~~ 273	5.5 %	~~88~~ 4,991	-66	~~44~~-	~~28~~ 292	~~14~~5.7 %	~~204~~ 5,085	-66	~~49~~-	~~5~~0
25	~~446~~ 12	~~9~~0.6 %	~~5138~~ 1,928	~~66~~62	-	~~470~~ 30	~~9~~1.5 %	~~5258~~ 2,022	~~66~~62	-	0
26	~~173~~ 3	~~11~~4.0 %	~~1613~~ 80	~~66~~64	-43	~~197~~ 22	~~11~~12.6 %	~~1733~~ 174	~~66~~61	-46	~~0~~3
27	~~39~~ 360	~~2~~7.8 %	~~1640~~ 4,630	~~64~~63	-	~~63~~ 378	~~4~~8.0 %	~~1760~~ 4,724	~~65~~63	-	~~1~~0
28	129	9.0 %	1,423	64	-	147	9.7 %	1,517	64	-	0
29	30	2.0 %	1,525	64	-	49	3.0 %	1,619	65	-	1

Link ID	2025 Do-Minimum					2025 Do-Something					Change in Noise Level (dB)
	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	HGV	HGV (%)	Total	18 Hour Basic Noise Level (L_{A10} dB) at 10m	18 Hour Noise Level (L_{Aeq} dB) at 10m	
30	95	2.1 %	4,612	69	-	114	2.4 %	4,706	69.	-	0
31	318	2.2 %	14,696	73	-	351	2.4 %	14,861	73	-	0
32	9	0.1 %	8,159	67	-	42	0.5 %	8,324	67	-	0
33	5	1.8 %	284	62.	50	36	8.3 %	441	61	52	2
34	7	0.3 %	2,518	62	-	17	0.7 %	2,565	62	-	0
35	4,853	7.1 %	68,223	80	-	4,872	7.1 %	68,317	80	-	0
36	10	2.3 %	406	62	52	28	5.7 %	500	61	53	1
37	1	2.9 %	35	70	42	20	15.4 %	129	64	48	6
~~283~~ 38	~~114~~ 37	~~2~~0.5 %	~~4870~~ 8,187	66	-	~~138~~ 56	~~3~~0.7 %	~~4990~~ 8,281	66	-	0

Biodiversity Receptors

Table ~~10~~9 presents the mitigated construction noise levels predicted at locations representative of biodiversity receptors. A description of the associated receptors and the assessment are presented in **Chapter 9 - Biodiversity (Volume II)**.

Table ~~10~~9 - Predicted Mitigated Construction Noise Levels at Biodiversity Receptors

Biodiversity Receptor	Noise Level L_{Aeq} dB								
	Indicative Route			Route near North West Boundary			Route near South East Boundary		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
B113	64	~~15~~17	~~15~~17	61	22	22	79	34	34
T49	63	~~46~~44	~~46~~44	61	~~49~~46	~~49~~46	68	~~43~~40	~~43~~40
T102	32	32	32	32	32	32	32	32	32
T190	~~65~~64	~~62~~57	~~62~~57	~~67~~65	~~64~~54	~~64~~54	~~64~~60	~~62~~52	~~62~~52
T200	~~64~~57	~~63~~48	~~63~~48	~~61~~62	~~56~~59	~~56~~59	63	62	62
T220	65	58	58	68	62	62	64	~~51~~50	~~51~~50
T325 – T327	65	~~51~~52	~~51~~52	61	~~50~~51	~~50~~51	73	~~51~~52	~~51~~52
T365	63	< 10	< 10	76	< 10	< 10	60	< 10	< 10
T371	60	~~57~~58	~~57~~58	58	56	56	74	64	64
T111	~~64~~65	~~50~~52	~~50~~53	~~60~~61	~~50~~52	~~50~~5	82	~~51~~53	~~51~~53
T166	~~72~~64	56	56	~~66~~63	~~57~~56	~~57~~56	63	~~56~~55	~~56~~55
T321	63	~~50~~49	~~50~~49	74	~~50~~49	~~50~~49	59	~~49~~48	~~49~~48
L5455	71	~~34~~13	~~34~~13	71	~~33~~13	~~33~~13	71	~~35~~13	~~35~~13
L5455	66	~~35~~15	~~35~~15	66	~~34~~15	~~34~~15	66	~~36~~15	~~36~~15
L6455	~~62~~61	~~57~~54	~~57~~54	~~69~~68	~~60~~55	~~60~~55	~~60~~59	~~55~~52	~~55~~52

DECOMMISSIONING

AGI and BVS

Table ~~11~~10 presents the number of receptors that would receive either a medium or high magnitude of impact from noise levels during decommissioning of AGIs and BVSs. The receptor experiencing a medium magnitude of impact after mitigation is near the BVS proposed on Cornist Lane, south of Bryn Awel.

Table ~~11~~10 - Number of Receptors during Decommissioning

Unmitigated		Mitigated	
Medium	**High**	**Medium**	**High**
~~132~~133	~~40~~39	1	0

1.2. VIBRATION

CONSTRUCTION

Piling and Ground Compaction

Table ~~12~~11 and **Table ~~13~~12** present the peak particle velocities predicted for the vibratory piling and ground compaction activities during the Construction Stage. The values correspond to steady state operation.

The predictions presented in the table are presented for a range of distances including the SOAEL and LOAEL defined for human perception in **Chapter 15 – Noise and Vibration (Volume II).**

No significant sources of vibration are expected during decommissioning.

Table ~~12~~11 - Peak Particle Velocity During Vibratory Piling

Distance (m)	Peak Particle Velocity (mm/s)		
	95 % Confidence Level	67 % Confidence Level	50 % Confidence Level
5	27.9	13.2	6.3
10	10.6	5.0	2.4
15	6.0	2.8	1.4
20	4.0	1.9	0.9
25	2.9	1.4	0.7
30	2.3	1.1	0.5
35	1.8	0.9	0.4

Distance (m)	Peak Particle Velocity (mm/s)		
	95 % Confidence Level	67 % Confidence Level	50 % Confidence Level
40	1.5	0.7	0.3
45	1.3	0.6	-
50	1.1	0.5	-
55	1.0	0.5	-
60	0.9	0.4	-
65	0.8	0.4	-
70	0.7	0.3	-
75	0.6	-	-
80	0.6	-	-
85	0.5	-	-
90	0.5	-	-
95	0.5	-	-
100	0.4	-	-
105	0.4	-	-
110	0.4	-	-
115	0.3	-	-

Table ~~13~~12 - Peak Particle Velocity During Ground Compaction

Distance (m)	Peak Particle Velocity (mm/s)		
	95 % Confidence Level	67 % Confidence Level	50 % Confidence Level
5	19.6	10.2	5.3
10	8.5	4.4	2.3
15	5.0	2.6	1.4
20	3.4	1.7	0.9
25	2.5	1.3	0.7
30	1.9	1.0	0.5
35	1.5	0.8	0.4
40	1.3	0.7	0.3
45	1.1	0.6	-

Distance (m)	Peak Particle Velocity (mm/s)		
	95 % Confidence Level	67 % Confidence Level	50 % Confidence Level
50	0.9	0.5	-
55	0.8	0.4	-
60	0.7	0.4	-
65	0.6	0.3	-
70	0.6	-	-
75	0.5	-	-
80	0.5	-	-
85	0.4	-	-
90	0.4	-	-
95	0.4	-	-
100	0.3	-	-